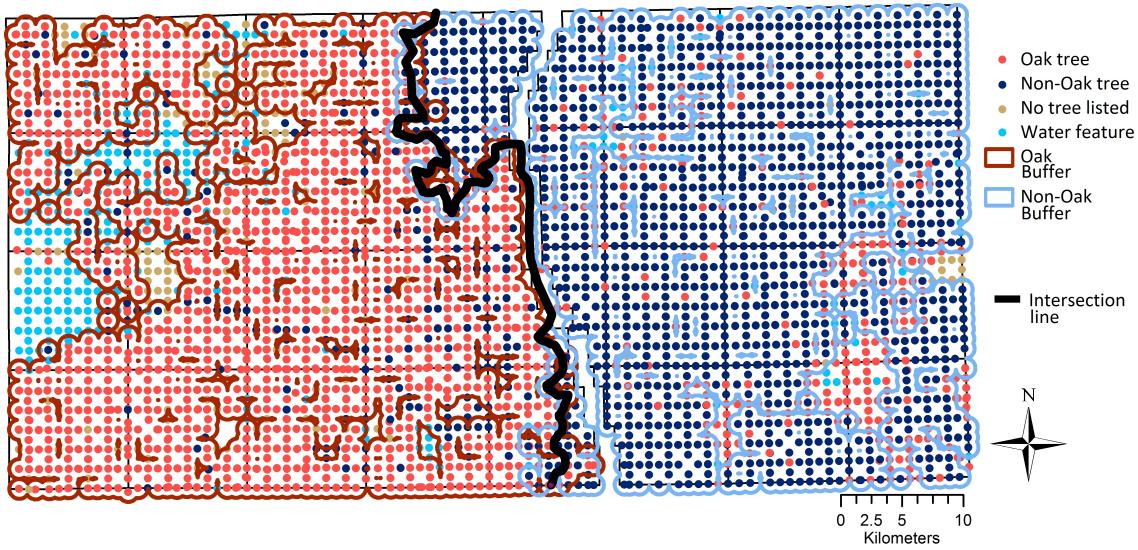


1 Supplemental Material

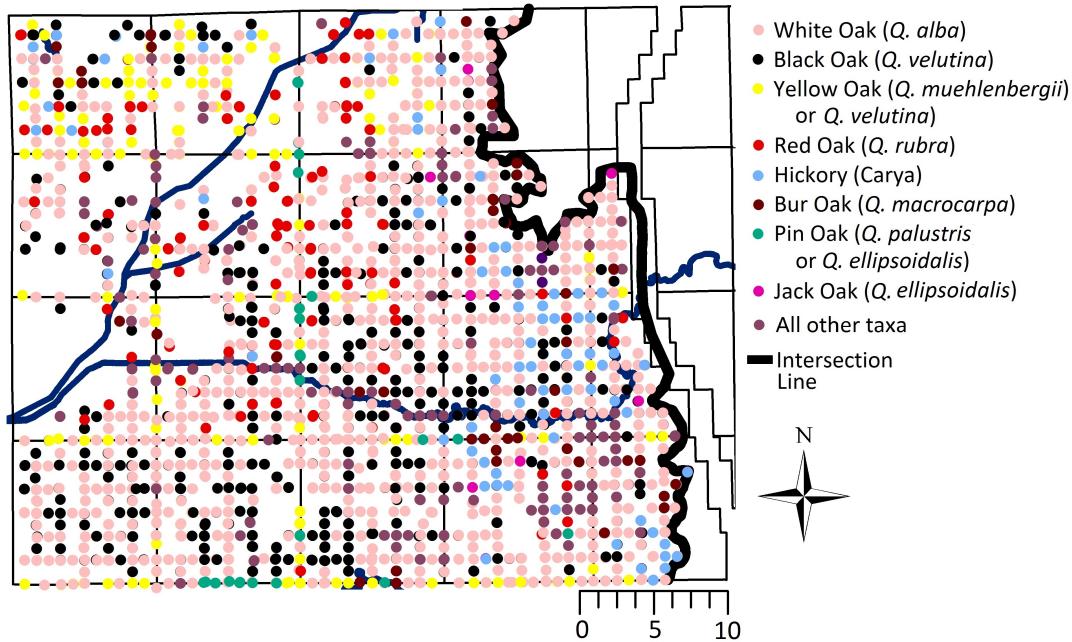


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3 **Figure S1.—Eastern and western vegetation types, delineated by overlapping buffers of oak and**
4 **non-oak trees in ArcGIS.** Buffers draw in ArcGIS with radius $r=0.5$ mi, around spatially continuous oak
5 (orange) and nonoak (blue) species. The black midline between the two buffers divides the study area into
6 eastern (oak-dominated) and western (mixed forest) halves.

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10 **Figure S2: Trees in western oak area further separated by species*.** Fire-tolerant black oak
 11 (black) and burr oak (orange) are evenly distributed within the western region. This indicates that
 12 tree species in the western side are not distributed in a way that suggests a gradient in tree
 13 ecological characteristics, and that it is appropriate to group the area as one association for
 14 comparative purposes.

15 *Because surveyors only recorded common names, there is some ambiguity about certain oak
 16 species. According to White (2005), yellow oak could be *Q. muehlenbergii* or *Q. velutina*, and
 17 pin oak can be *Q. palustris* or *Q. ellipsoidalis*. Jack oak is most likely *Q. ellipsoidalis* but
 18 surveyors also used the term jack oak to refer to a number of scrubby oak species (White 2005).

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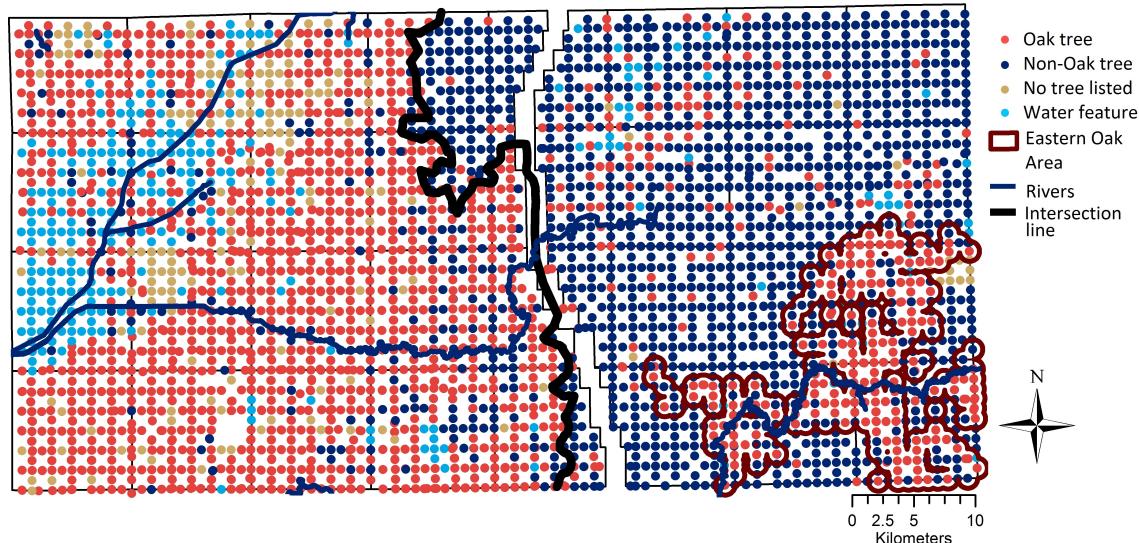
24 Table S1. Full list of east/west comparisons for environmental and modern descriptions.

Variable short description	Long description	Source
Temperature	30-yr Normal Mean Temperature Annual in degrees C	PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu .
Precipitation	30-yr Normal Precipitation (in mm)	PRISM Climate Group
Elevation	National Elevation Dataset (10m resolution)	National Elevation Dataset http://nationalmap.gov/elevation.html
National Commodity Crop Productivity Index (all)	The map unit average National Commodity Crop Productivity Index values are provided for major earthy components. (Low index values indicate low productivity, and high index values indicate high productivity.) Table column names begin with “nccpi.” NCCPI values are included for corn/soybeans, small grains, and cotton crops. Of these crops, the highest overall NCCPI value is also identified. Earthy components are those soil series or higher level taxa components that can support crop growth. Major components are those soil components for which the MAJCOMPFLAG is “Yes” in the SSURGO component table. A map unit percent composition for earthy major components is provided (Dobos, Sinclair, Jr., and Robotham, 2012).	SSURGO val1 table. Soil Survey Group, Natural Resource Conservation Service, United States Department of Agriculture.
Drainage Class- dominant condition	The natural drainage condition of the soil refers to the frequency and duration of wet periods. This column displays the dominant drainage class for the map unit, based on composition percentage of each map unit component.	SSURGO muaggatt table
Modern land use	30 m grid showing 2006 land cover data in Indiana. There are 15 categories of land use.	Fry, J., G. Xian, S. Jin, J. Dewitz, C. Homer, L. Yang, C. Barnes, N. Herold, and J. Wickham. 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States. <i>PE&RS</i> , 77:858-864.

Sand content (sandtotal_r)	Mineral particles 0.05mm to 2.0mm in equivalent diameter as a weight percentage of the less than 2 mm fraction.	SSURGO chorizon table
Silt content (silttotal_r)	Mineral particles 0.002 to 0.05mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.	SSURGO chorizon table
Clay content (claytotal_r)	Mineral particles less than 0.002mm in equivalent diameter as a weight percentage of the less than 2.0mm fraction.	SSURGO chorizon table
Organic matter (om_r)	Percent representative soil organic matter. The amount by weight of decomposed plant and animal residue expressed as a weight percentage of the less than 2 mm soil material.	SSURGO chorizon table
Saturated Hydraulic Conductivity (ksat_r)	The amount of water that would move vertically through a unit area of saturated soil in unit time under unit hydraulic gradient.	SSURGO chorizon table
Available water capacity (awc_r)	The amount of water that an increment of soil depth, inclusive of fragments, can store that is available to plants. AWC is expressed as a volume fraction, and is commonly estimated as the difference between the water contents at 1/10 or 1/3 bar (field capacity) and 15 bars (permanent wilting point) tension and adjusted for salinity, and fragments.	SSURGO chorizon table
Erodibility factor (kwfact)	An erodibility factor which quantifies the susceptibility of soil particles to detachment and movement by water. This factor is adjusted for the effect of rock fragments.	SSURGO chorizon table

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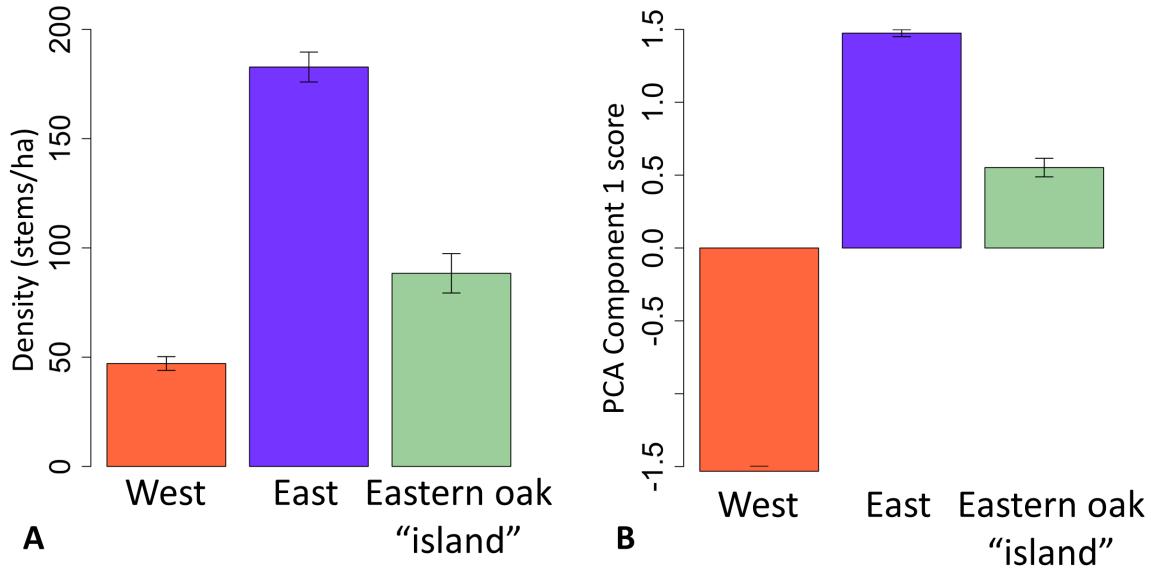
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28 **Figure S3: Eastern oak “island”.** Cluster of oak dominance within the eastern region,
 29 quantified with the same ArcGIS buffer tool with radius $r = 0.5$ mi. This area includes 617 trees
 30 and 293 survey corners which were used to compare forest structure and environmental
 31 characteristics.

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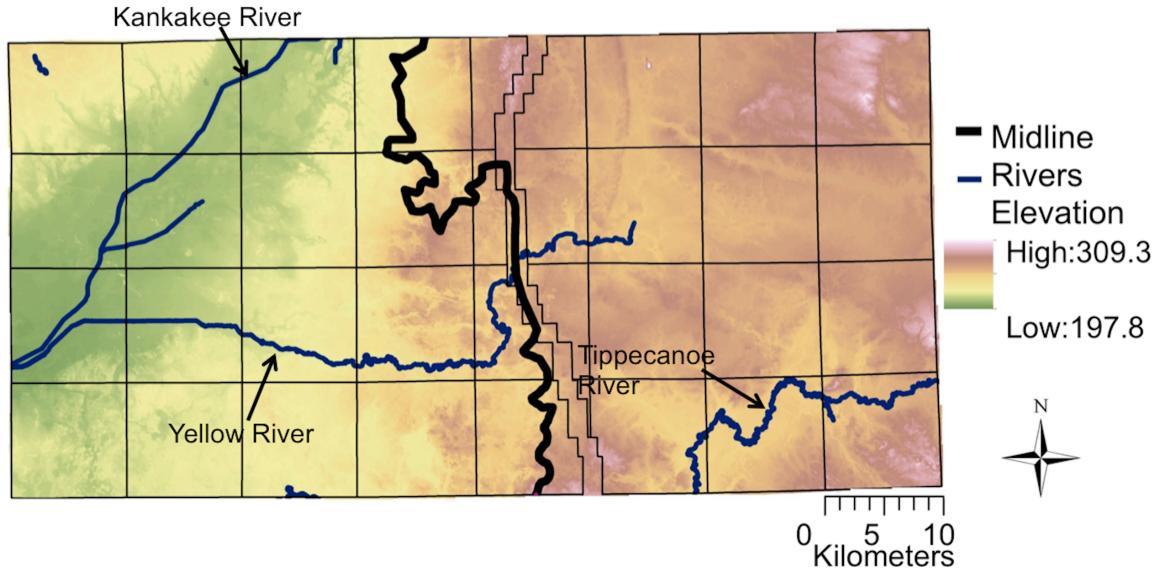
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36 **Figure S4: Structure and environment of eastern oak “island”.** (A) Stem density and (B) first
37 principal component score of the small eastern oak area, compared to the two main vegetation areas. Error
38 bars represent standard error. Eastern oak region has intermediate density and environment, but more
39 closely resembles the western vegetation structure and the eastern environment.

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 43 Figure S5. Elevation (m) within watershed. Elevation dropoff tracks vegetation division (black
 44 line). There is a lower elevation around the Kankakee River in the west, and a slight decrease in
 45 elevation around the Tippecanoe River in the southeast. The black grid is the map of PLS survey
 46 townships, bisected by the Michigan Road Lands.
 47

48 Table S2. Loadings of factors into the first and second principal component axes.

	PC1	PC2
Temperature	0.233	-0.554
Precipitation	0.016	-0.259
Elevation	0.342	-0.396
Sand %	-0.357	0.100
Silt %	0.420	0.190
Clay %	0.428	0.145
Organic matter	0.205	0.606
Hydraulic conductivity (ksat)	-0.390	0.074
Available water content (awc)	0.384	0.175

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